Background Information And Optional Management Strategies And Actions Hearst District Fisheries Management Plan 1986 - 2000

A Summary

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Ministry of Natural Resources
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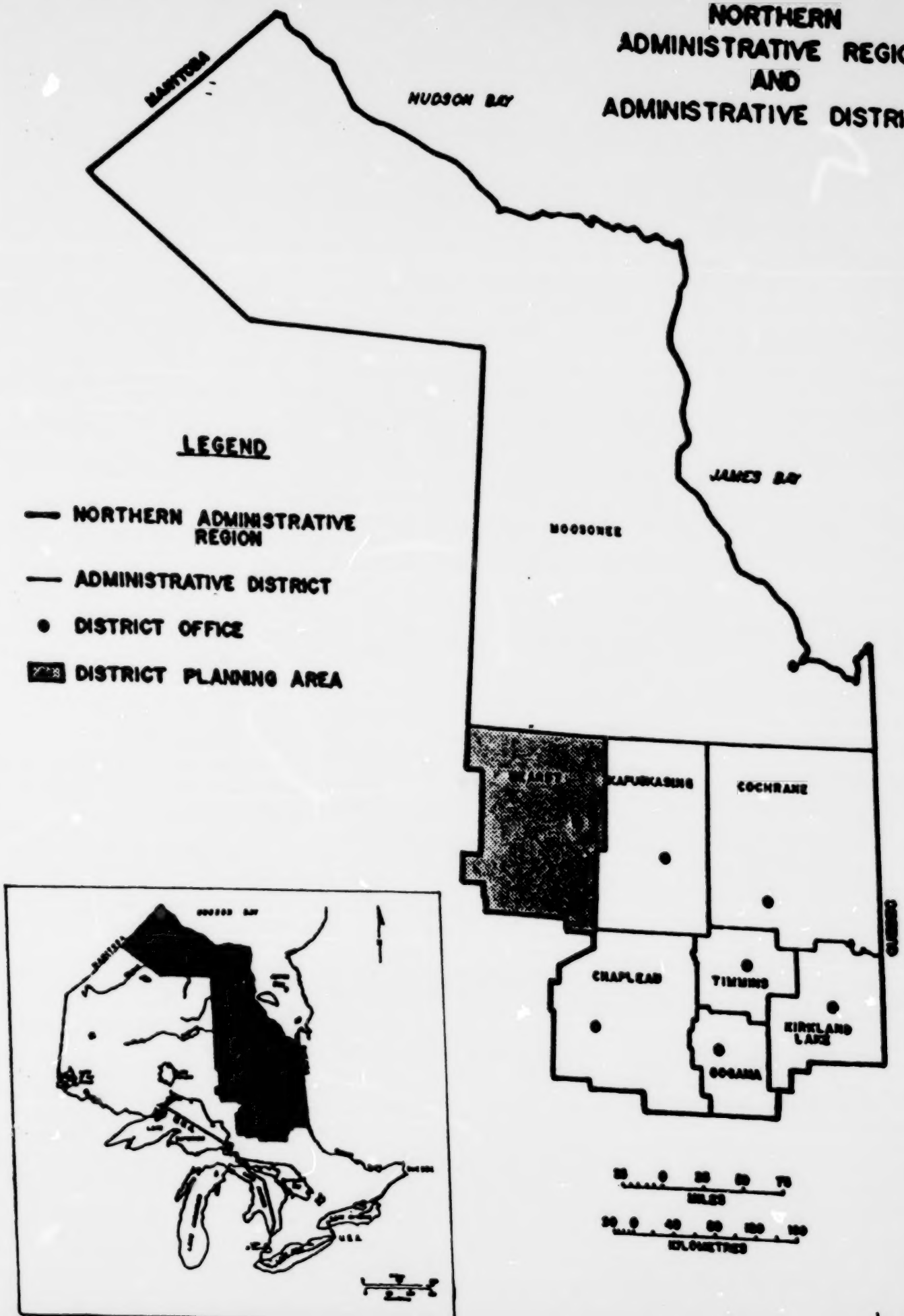

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1.0 INTRODUCTION

1.1 Purpose

The Hearst District Fisheries Management Plan is being developed to provide direction for the management of the District's fisheries resource. This document presents an opportunity for you, the public, to be involved in the planning process by commenting on the accuracy of the background information, identifying problems and issues and suggesting strategies or actions for the future direction of fisheries management in Hearst District. It also identifies the current and estimated future supply and harvest of the fisheries resource.

1.2 Planning Process

The Hearst District Fisheries Management Plan is being designed so that it fits into the Ministry's overall planning process. This starts with the Strategic Land Use Plan for Northeastern Ontario and is narrowed to a district level in the District Land Use Guidelines (DLUG). This latter document provides targets for individual resource management plans, such as District Fisheries Management Plans.

To coincide with DLUG, the Fisheries Management Plan is designed to be effective until the year 2000. It will include a five-year implementation program which indicates, on an annual basis, specific fisheries management activities that will be carried out within Hearst District.

Following public review of this document, a District Fisheries Management Plan presenting preferred management strategies will be drafted and presented to the public for comment. These comments will be evaluated and considered in a revised plan. Upon approval, the final Management Plan will be available to the public.

The Ministry of Tourism and Recreation and other services of the Ministry of Natural Resources have been given the opportunity to review and comment on this document, and have provided input in areas where the Fisheries Management Plan may affect their programs.

1.3 Detailed Background Report

A detailed background report for Hearst District has been prepared. It is available for public review at the Hearst District Office, and includes information regarding:

- The Planning Area
- The Resource
- Resource Use and Projection
- Present Management Practices
- Problems and Issues
- Identification and Evaluation of Optional Management Strategies and Actions

A summary of the background information is contained in Section 2.0 of this document.

2.0 BACKGROUND INFORMATION

2.1 The Resource Base

2.1.1 Perspective

Hearst District covers an area of 25245 sq. km, of which 941 sq. km are water. Most of the District waters flow north in the southern James-Hudson Bay watershed. However, there are three small areas in the southwest corner of the District which flow south to Lake Superior. The highest point in the District, at 487 metres above sea level, occurs along the height of land in the southwest corner of the District, while the lowest point occurs at the northern limit of the District, 150 metres above sea level. The northern section of the District has several large river systems with relatively steep gradients, meandering paths and frequently occurring oxbow lakes. The flat, poorly-drained plains of the north and east sections of the District are relatively absent of lakes. The southern section has numerous shallow, irregular shaped lakes. The majority of soils throughout the District are various forms of clay, resulting in poor drainage. The bedrock is typical of the Precambrian Shield, granite intrusive rock with extensive areas of basic intrusive sedimentary and volcanic rocks. This results in highly alkaline lakes, which are less susceptible to the effects of acid precipitation.

The District is the westernmost district in the Northern Administrative Region of the Ministry of Natural Resources (Figure 1). The District population is approximately 10200 (1983 est.), with the majority of residents living in the towns of Hearst and Hornepayne. There is one populated Indian Reserve within the District, the Constance Lake Indian Reserve, containing the town of Calstock.

Privately owned land within the District accounts for approximately 11% of the District area with the remaining 89% being Crown land. Waters surrounded by these privately owned areas are relatively inaccessible to the general public.

Three areas of the District are of particular concern to this plan due to potential for fisheries overharvesting. These are the Kabinakagami Lake, Nagagami Lake and Obakamiga - Granitehill Lake areas.

2.1.2 The Resource

There are 3611 warmwater lakes accounting for approximately 84% (79500 ha) of the District's total water area, with the majority being found in the south and southwest portions of the District. The major sport fish species occurring in these lakes are walleye (Stizostedion vitreum vitreum), northern pike (Esox lucius), lake whitefish (Coregonus clupeaformis) and yellow perch (Perca flavescens). Walleye and northern pike form the basis of the District's warmwater sport fishery. These lakes can annually produce 249000 kg of fish (Table 1).

There are 73 coldwater lakes accounting for only 2% (2000 ha) of the District's total water area. These lakes are usually associated

Table 1. Summary of Fisheries Potential for Hearst District.

Waterbody Classification	No. of Waterbodies	Total Area (ha)	Total Annual Estimated Production (kg/yr)	Length (where applicable) (km)
Surveyed Warmwater Lakes	195	50700	154100	
Surveyed Coldwater Lakes	73	2000	4800	
Unsurveyed Warmwater Lakes	3416	28800	94900	
Unsurveyed Coldwater Lakes	0	-	-	
Warmwater Rivers and Streams	17	7200	31000	1150
Coldwater Rivers and Streams	27	5400	21100	1350
Total of Above	3728	94100	305900	2500
Walleye Waters	87	45600	44100	
Northern Pike	143	50200	38500	
Lake Whitefish	48	48100	27000	
Brook Trout	71	7000	19300	
Yellow Perch	120	45100	17800	
Lake Sturgeon	4	4500	900	
Lake Trout	4	800	400	
Rainbow Trout	2	200	200	
Total of Above	-	-	148200	

with the Nagagamisis Uplands and, to a lesser extent, the esker formation in Rogers Township. The major fish species occurring in these lakes is stocked brook trout (Salvelinus fontinalis). There are also four stocked lake trout (Salvelinus namaycush) lakes and two stocked rainbow trout (Salmo gairdneri) lakes. Coldwater lakes in Hearst District are capable of producing an estimated 4800 kg of fish per year (Table 1).

Of the 44 major rivers in the District, 17 are warmwater and 27 are coldwater. The warmwater rivers cover a distance of 1150 km and 8% (7200 ha) of the District's total water area. Coldwater rivers account for 1350 km and 6% (5400 ha) of the District's water area. The major fish species occurring in the District's rivers are brook trout in coldwater rivers and walleye, northern pike and sturgeon (Acipenser fulvescens) in warmwater rivers as well as sections of coldwater rivers. There is very limited information available on the District's sturgeon fishery. The total estimated annual production for warmwater and coldwater rivers are 31000 kg and 21100 kg respectively (Table 1).

The total estimated production for all waters in Hearst District is 305900 kg per year, 148200 kg (48%) of which are species considered to be sport fish. The species that anglers prefer most in the District are walleye, northern pike and salmonids. These species have annual estimated productions of 44100 kg, 38500 kg and 19900 kg respectively (Table 2).

2.2 Fisheries Supply, Harvest and Projected Harvest

A total of 10200 anglers spend an estimated 75000 angler days annually fishing in Hearst District. Approximately 53% of this pressure is attributed to resident fishermen with the remaining 47% being non-residents.

It is estimated that 148200 kg of sport fish can be produced annually in Hearst District. The current estimated harvest of sport fish in the District is 68200 kg per year, or 0.9 kg of sport fish per angler day.

Based upon population projections, fishing pressure is expected to increase 12% by the year 2000. Annual angler days would increase to 84000, which, at current rates, would result in an annual sport fish harvest of 76400 kg.

Table 2 illustrates that, on a district-wide basis, the sport fish supply is able to meet the current and projected harvest. It also shows that anglers prefer to catch mainly walleye, followed by northern pike. Lake whitefish, brook trout and yellow perch are greatly underutilized. Although it appears that the sport fish supply can meet the demand, the fishing effort within the District is poorly distributed. Limited road access to waterbodies, and waterbodies within the boundaries of private lands, have caused heavy fishing pressure to occur on readily accessible waters. The combination of heavy fishing pressure and the anglers' preference for walleye have placed this fish species in a stressful situation in the readily accessible waters, as well as in some tourism lakes. This heavy fishing pressure will result in reducing the brood stock, which will cause a reduction in angler success as overall population levels drop in the readily accessible lakes.

Table 2. Sport Fish Production And Use, Hearst District.

Species	Allowable Harvest (kg)	Current Harvest (kg)	Projected Harvest (kg)
Walleye	44100	35000	39200
Northern Pike	38500	22600	25400
Lake Whitefish	27000	2100	2300
Brook Trout	19300	5500	6100
Yellow Perch	17800	2100	2300
Lake Sturgeon	900	500	600
Lake Trout	400	300	400
Rainbow Trout	200	100	100
	148200	68200	76400

At present, the only commercial fishery in Hearst District is the baitfish industry. There are 59 licenced baitfish areas in the District, with an average of 23 licences issued annually. The reported harvest averages 14500 dozen per year (valued at $13400). The baitfish industry is expected to increase with the sport fish demand. Commercial fishing of lake whitefish and coarse fish, such as suckers, in the District's larger lakes (over 280 ha) may be considered if there is sufficient demand. Constance Lake Indian Reserve natives currently hold permits to harvest fish for personal use in three District lakes, Carey, St. Joseph and Pike Lakes.

There are currently 21 tourist outfitters operating in Hearst District who offer a variety of services to anglers. Many of these outfitters offer air service to lodges or outpost camps that are inaccessible by road. All of these outfitters depend upon the walleye fishery.

2.3 Current Management Practices

2.3.1 Introduction

Current fisheries management programs are directed at increasing or maintaining the supply of major sport fish. The most common methods of achieving this are population and habitat management. Population management includes stocking, new introductions of sport fish, adult fish transfers and harvest restrictions such as seasons and catch limits. Habitat management includes spawning bed rehabilitation or creation and lake reclamation.

2.3.2 Population Management

An average of 15500 trout are currently stocked into an average of six lakes per year. This consists of 10000 brook trout and 5500 lake trout. In addition, every three years 5000 rainbow trout are stocked into two lakes (Table 3). The majority of salmonid stocking is done on a put-and-delayed-take basis.

Supplemental walleye stocking is done on two lakes under the direction of the Community Fisheries Involvement Program (CFIP). In addition, adult walleye and smallmouth bass transfers have been undertaken in the last two years in attempts to establish new populations in several lakes.

Harvest restrictions, such as closed seasons, sanctuaries and catch limits, are designed to control the annual harvest. In 1986, the north border of Division 19 was extended northward along the east bank of the Kabinakagami River and the west bank of the Missinaibi River to the north boundary of the townships of Fushimi, Bannerman, Ritchie, Mulvey and Goldwin in an attempt to protect walleye populations during the spring spawning period in the Hearst "Chain-of-lakes". The eastern and western borders may be extended in the near future.

In 1987, two new walleye spawning sanctuaries will be introduced, one on the Valentine River in Bannerman Township, the other on Stoddart Creek in Stoddart Township, both effective until June 15. Other fishing seasons and catch limits are as specified in the provincial regulations.

Creel censuses are regularly undertaken to assess the harvest rates on some of the District's lakes suspected of being overharvested.

2.3.3 Habitat Management

Habitat management in Hearst District has been primarily the rehabilitation or creation of spawning bed sites. Three such projects have been conducted over the past three years under CFIP. Also under this program, debris was removed from two creeks to allow walleye to re-enter two lakes. These programs are designed to increase fish production. An assessment of brook trout spawning beds was conducted in September 1986. Other ongoing projects include the creation of two ponds to be used in raising walleye fry.

Table 3. Hearst District Stocking Program.

Species	Number of Lakes Stocked	Number of Fish Stocked per Year
Brook Trout	22 (average 4-5 per year)	10000
Lake Trout	4 (average 2 per year)	5500
Rainbow Trout	2 (every third year)	5000

Lakes are generally stocked on a rotating 2-5 year basis.

2.3.4 Enforcement

Hearst District has three full-time Conservation Officers, one Enforcement Co-ordinator, one Fish and Wildlife Supervisor and seven Deputy Conservation Officers available for fisheries enforcement activities. Fisheries enforcement comprises about 33% of the Conservation Officers' enforcement time. At present, the top fisheries enforcement priority is the spring walleye spawning run and early season fishing.

2.4 Target Refinement

To direct management effort to meet the demands placed upon the fisheries, a series of objectives and targets were developed for DLUG (1983). As stated previously in the Introduction, DLUG provides the objectives and targets for the District Fisheries Management Plan. However, since the publication of DLUG, new and more complete data have been obtained. Consequently, while the DLUG objectives remain similar, the targets have been refined to better reflect the actual productivity of the resource. The sport fish target has been subdivided into four individual targets: walleye, northern pike, salmonid and other species. The lake trout objective and target, which appeared separately in DLUG, have been incorporated into the sport fish objective and salmonid target respectively. The commercial fishing objective remains unchanged to allow for harvesting of coarse fish on lakes greater than 280 ha if biologically and economically feasible on an individual lake basis. The baitfish objective, which falls under commercial fishing in DLUG, remains the same. However, there is no baitfish target specified in DLUG, and consequently one has been established to reflect the projected increase in demand (Table 4).

Table 4. Fisheries Management Objectives and Targets.

BROAD FISHERIES MANAGEMENT OBJECTIVE

To protect, enhance, maintain and rehabilitate fish communities and their environment in order to provide an optimum contribution of fish, fishing opportunities and their associated benefits to society.

SPORT FISH OBJECTIVE

To maintain opportunities for a diversified angling experience and meet the future angling demand for all species within the limits of sustained yield management.

COMMERCIAL FISH OBJECTIVE

To encourage the harvest of commercial fish populations where biologically and economically feasible. To manage bait fish to ensure socioeconomic benefits and the maintenance of stable fish communities within the limits of sustained yield management.

SPORT FISH TARGET

To satisfy the angling demand through the provision of 76400 kg of sport fish per year by the year 2000.

Walleye - to provide a harvest of 39200 kg by the year 2000.

Northern Pike - to provide a harvest of 25400 kg by the year 2000.

Salmonid - to provide a harvest of 6600 kg by the year 2000.

Other Species - to provide a harvest of 5200 kg by the year 2000.

COMMERCIAL FISH TARGET

To meet the anticipated demand of 16000 dozen baitfish by the year 2000.

The new refined targets were selected by comparing the allowable use or harvest with the projected use or harvest. For example, the projected use in angler days (84000) was compared with the allowable use (163000) to determine the new refined target. Since the projected use is less, it has been designated the target. The DLUG target (86200) is higher than the projected use due to the error of using 15% rather than 12% as the projected increase to the year 2000 (Table 5). All the targets are designed to meet the demands of the resource users while maintaining the resource. Management strategies have been developed for each objective and target.

2.5 Problems and Issues

2.5.1 Overharvesting

There are 16 walleye lakes in the District which are suspected of being overharvested to varying degrees by sport fishing (Figure 2) (Table 6). These lakes account for 39% of known walleye waters and 34% of walleye production respectively.

Kabinakagami, Nagagami, Obakamiga and Granitehill Lakes are four of the most important and heavily used commercial tourism lakes in the District. The present level of use is at or over the recommended level for these lakes. Obakamiga and Granitehill Lakes have been overharvested to such a degree that the allowable harvest is no longer capable of being met. Other commercial tourism lakes suspected of being at or over the recommended level include Shekak, Buffalo Island, Lessard, Linbarr, and White Owl Lakes.

Provincial parks are established on Nagagamisis and Fushimi Lakes, and consequently these lakes receive a high level of use from both tourists and locals on camping trips. In addition, Fushimi Lake, along with the cottaging lakes of Stoddart, Hanlan, Wolverine, Pivabiska and Shannon, is quite close to the town of Hearst and, as a result, receives very heavy pressure from day trip anglers.

Lac Ste. Therese has a large amount of cottage development along its shores. The owners and guests of these cottages exert a large amount of pressure on the lake. This is also the case, although to a lesser extent, on Government and East Government Lakes.

A continued overharvesting of a lake may result in the decline of fish populations in that lake by reducing the numbers of breeding adult fish. As well, the selection of one species in the harvest may result in other less preferred fish species becoming predominant in the lake. In either case, should this happen on any of the above lakes, the projected demand of walleye may not be available.

Table 5. Year 2000 Target Refinement, Hearst District.

Sport Fishery Users	Projected Use (days/year)	DLUG Target* (days/year)	Allowable Use (days/year)	New Refined Target (days/year)
Resident	44500	45700	86400	44500
Non-resident	39500	40500	76600	39500
Total	84000	86200	163000	84000

	Projected Harvest (kg/year)	DLUG Target* (kg/year)	Allowable Harvest (kg/year)	New Refined Target (kg/year)
Coldwater Fishery				
Brook trout	6100	not given	19300	6100
other salmonids	500	not given	600	500
Warmwater Fishery				
Walleye	39200	not given	44100	39200
Northern Pike	25400	not given	38500	25400
other species	5200	not given	45700	5200
Total sport fish	76400	261300	148200	76400

* DLUG Target is being amended to more accurately reflect District fisheries data.

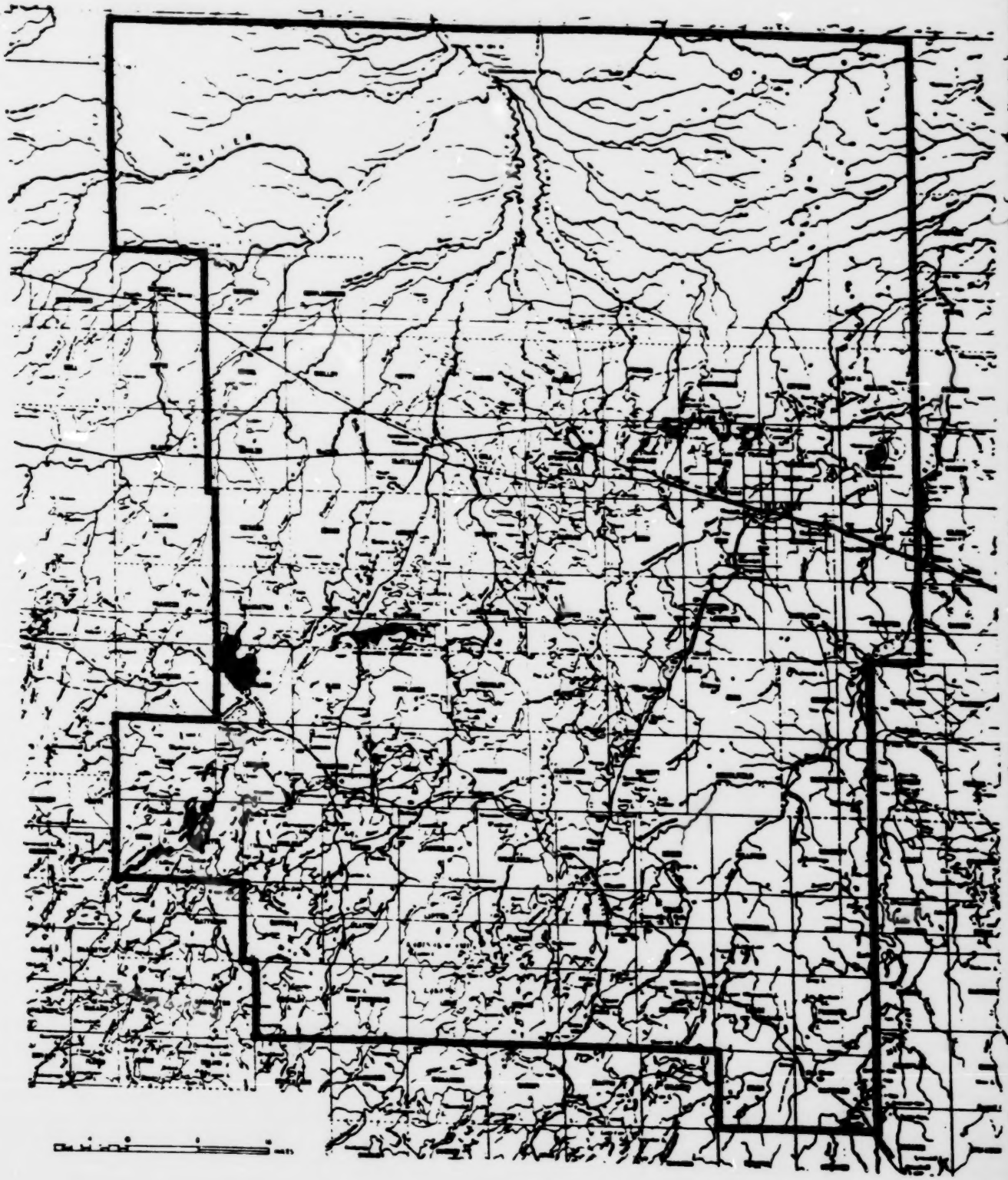

Figure 2. Lakes suspected of overharvesting of walleye.

Table 6. Lakes Suspected of Overharvesting of Walleye.

Lake Name	Township	Area (ha)	Allowable Harvest of Walleye (kg/yr)	Present Harvest of Walleye (kg/yr)
Obakamiga	Cholette	2900	2800	2400*
Granitehill	Drew	1400	1000	1000
Nagagami	Nagagami	5500	3800	8100
Lessard	Lessard	200	100	200
Linbarr	Foch	400	300	300
Buffalo Island	Chelsea	300	300	500
Nagagamisis	Frost & McEwing	2300	2400	2200*
Stoddart	Stoddart	100	100	**
Fushimi	Stoddart	1200	1000	900*
Hanlan	Hanlan	500	400	300*
Wolverine	Hanlan	400	300	300
Pivabiska	Hanlan	800	700	700
"Chain of Lakes"		3000	2500	2200*
Shannon	Shannon	1100	1100	**
Government	Lessard	300	300	(Excessive cottage development related activities have substantially reduced the fishery resource on these three lakes.)
East Government	Wicksteed	100	100	
Ste. Therese	Casgrain	100	200	
Total		17600	14900	16900

* These lakes are overharvested to such a degree that they are no longer capable of producing the allowable harvest.

** No data has been collected for these lakes, however it is suspected that they are being overharvested.

2.5.2 Tourism Industry's Need for Remote High Quality Fishery

There are 21 tourist outfitters in Hearst District. The commercial tourism industry depends on being able to provide a high quality angling experience in a remote setting. The Hearst District Land Use Guidelines recognize the industry's needs by:

- designating outpost lakes as tourism lakes, which are to remain roadless.
- specifying tourism as the primary land use in the area of the large lodge lakes (Kabinakagami, Nagagami, Obakamiga and Granitehill).

The tourist facilities on the four main lodge lakes generate annual revenues in excess of two million dollars (pers. comm., Ministry of Tourism and Recreation, 1986).

Some members of the general public view the priority given to tourism as unduly restrictive because it limits use of what they perceive as the "best" lakes in the District.

As indicated previously, some of the tourism lakes are currently overharvested. Forest access roads are creating increased pressure by providing access close enough to many tourism lakes that it requires little effort to build an ATV/snowmobile trail.

2.5.3 Inaccessibility

A total of 20400 ha of water with an annual estimated total fish production of 68700 kg are contained within privately owned townships. This production includes an estimated 39100 kg of walleye and northern pike. Although only 3700 ha of this area is legally inaccessible, a significant amount is not readily accessible to the general public. In addition, a large number of lakes and rivers in Crown townships are currently inaccessible. As a result, the District's fishing pressure is concentrated on the accessible waters. These accessible lakes are not capable of producing enough walleye, northern pike and brook trout to meet the projected harvest.

2.5.4 Habitat Degradation

Information regarding fish communities and critical habitat sites is very limited for the District's rivers and streams and for some lakes. To date, only two rivers, the Kabinakagami and Nagagami Rivers, have been surveyed.

The potential for habitat degradation in Hearst District occurs primarily in the areas of other resource utilization activities. Habitat degradation may occur as a result of removal of shoreline vegetation and logging roads crossing streams. These activities can have a negative effect on fisheries habitat such as siltation of critical spawning areas for both brook trout and walleye.

2.5.5 Unwanted Species Introductions

The introduction of unwanted species into stocked salmonid lakes may result in predation upon, and competition with, trout by the introduced species. This would cause a decline in, or even the disappearance of, trout populations in the affected lake. These introductions usually occur by anglers dumping live baitfish at the end of the day.

In Hearst District, the introduced species of major concern is the yellow perch. It has been shown that the presence of this species reduces survival of stocked salmonids. Once yellow perch have become established in a lake, there is little chance of a brook trout fishery being maintained until the lake is reclaimed. In some cases, stocking has been discontinued because of the excessive presence of yellow perch in the lake. This has been the case in Rice, Rabbit, Hart and Little Hart Lakes.

2.5.6 User Perceptions

User awareness

There is a lack of public awareness or appreciation of the problem that a number of District lakes are overharvested, as well as a lack of awareness regarding Native Fishing Agreement negotiations and their effects concerning public angling opportunities.

The public has an incorrect perception that walleye culture has been perfected.

User preferences

Anglers in Hearst District have a preference for walleye, brook trout and lake trout. Other species such as yellow perch and lake whitefish are not presently being utilized to their potential. Anglers are not aware of the benefits of harvesting other species, such as the subsequent reduction in pressure on walleye.

3.0 OPTIONAL MANAGEMENT STRATEGIES AND ACTIONS

3.1 Introduction

The District Fisheries Management Plan planning team examined possible management strategies addressing the identified problems in Hearst District. A management strategy is a general statement of what can be done to correct a problem, while an action is how that strategy can be implemented. Strategies were assessed as to legality, technical feasibility, environmental acceptability, effect on problem, timing and social and monetary costs. It must be emphasized that all management strategies presented here are not final, but open to discussion and minimization of potential conflicts between users. It is important that the public voice their concerns so that the strategies selected reflect the direction of fisheries management desired by the public.

3.2 District Fisheries Problems, Optional Management Strategies and Actions

The following list of problems and optional management strategies may not be complete. We encourage the public to identify additional problems and issues, or strategies which are not addressed, and to comment on those listed.

Problem Overharvesting

Strategy - align harvest of walleye with allowable yield by reducing or controlling harvest.

actions - implement new regulations such as season manipulation, slot limits, and creel limit reductions to control harvest, resulting in more breeding fish remaining in the population.
- limit access to overharvested lakes; prohibit boat caches, overnight camping or construction of permanent structures on lakes.
- where feasible, provide access to presently underutilized waters to reduce pressure on overharvested lakes.
- create new sanctuaries to protect breeding populations until they have a chance to disperse.
- promote live release of walleye at local fish derbies.

Strategy - increase production of walleye within the District.

actions - improve or create new critical fish habitat such as spawning and nursing beds.
- introduce supplemental walleye stocking to help natural reproduction.
- introduce adult walleye into suitable lakes to establish naturally producing populations.

Strategy - reduce pressure on walleye by creating alternate fishing opportunities.

actions - introduce smallmouth bass or splake into suitable recipient lakes.
- promote use of underutilized fish species such as yellow perch, lake whitefish and lake sturgeon.

Strategy - reduce illegal harvest of walleye.

action - direct existing enforcement to problem areas during vulnerable times.

Strategy - continue to monitor situation to assess continued overharvesting.

actions - continue to undertake periodic creel census and assessment studies to identify overharvest situations.
- conduct index netting and fecundity studies to assess sport fish populations.

Problem Tourism Industry's Need for Remote High Quality Fishery

Strategy - protect tourism lakes to maintain a remote high quality fishery.

actions - introduce a limited entry licence for lodge lakes (Kabinakagami, Nagagami, Obakamiga and Granitehill) to protect high quality fishery while allowing limited public access.
- plan roads away from all tourism lakes to prevent access.
- develop access to alternate lakes where feasible to divert pressure from tourism lakes while providing public with quality angling experience.
- introduce slot limits to allow maximum number of anglers while protecting lake from overharvesting.
- provide opportunities for tourist operators to take an active role in fisheries management eg. CFIP.

Problem Inaccessibility

Strategy - provide access to lakes within privately owned townships.

action - with landowner agreements, open present timber company roads in certain areas to allow access to specific lakes.

Strategy - input into Timber Management Plans.

action - promote selected access routes to provide access to waterbodies where appropriate.

Problem Habitat Degradation

Strategy - improve habitat where problems occur.

actions - conduct river and stream surveys to identify problem areas.
- survey possible sensitive areas.
- rehabilitate spawning and nursing beds.

Strategy - protect habitat from being adversely affected by other resource development activities.

actions - ensure habitat management guidelines are being implemented.
- conduct regular field inspections to ensure guidelines are adequately protecting fish habitat.
- input into resource development plans by identifying "areas of concern".
- enforce various acts and legislations to protect fish habitat.

Problem Unwanted Species Introductions

Strategy - restrict the use of live bait on selected lakes to reduce the incidence of yellow perch and minnows becoming established in stocked salmonid lakes.

actions - introduce regulations prohibiting use of live bait in selected stocked salmonid lakes.
- post notice at stocked lakes.

Strategy - communicate to the public the effect of unwanted species introductions.

actions - conduct seminars regarding the effect of introducing minnows, yellow perch and other small fish into stocked lakes.
- post notice at stocked lakes.

Strategy - eradicate unwanted species from selected stocked lakes.

action - use chemicals to remove fish in selected lakes, reintroduce desired fish species.

Problem User Perceptions

Strategy - educate public in fisheries management and fisheries problems.

actions - conduct seminars to address unrealistic angler expectations.
- educate the next generation of anglers, the children.
- promote use of underutilized species.
- ensure public is kept informed of developments regarding the Native Fishing Agreement.
- promote the "Report a Poacher" program.

Strategy - involve public in fisheries management activities.

actions - promote the Community Fisheries Involvement Program (CFIP).
- involve the public in habitat rehabilitation, introductions and stocking.

3.3 Social and Monetary Costs Associated With Management Actions

Table 7 summarizes all the social benefits and costs, as well as monetary costs, associated with implementing the various management strategies. Monetary costs listed as low are less than $2000, moderate is $2000 to $20000 and high is over $20000 annually. Please review this table carefully before making any recommendations.

Fish are not cheap to produce and funding for fisheries management is limited. Some strategies are extremely expensive to undertake and implementation of these high cost strategies will mean less opportunity for fisheries improvement in other areas. Similarly, high social costs accompany some management strategies, and these should also be carefully considered.

Table 7. Social and Monetary Costs Associated With Implementation of Management Actions.

PROBLEM	ACTION	SOCIAL BENEFITS/COSTS	MONETARY COST
Overharvesting	-season manipulation	-reduced fishing opportunities	-low
	-introduce slot limit	-reduced success rates	-low
	-lower creel limit	-reduced harvest	-low
	-limit access to overharvested lakes	-reduced fishing opportunities	-moderate
	-provide access to presently underutilized lakes	-increased fishing opportunities, reduced pressure on stressed lakes	-moderate-very high
	-create new sanctuaries	-reduced fishing opportunities, protect breeding stock	-low
	-promote live release of walleye at local fish derbies	-increased fish production, increased fishing opportunities	-low
	-improve or create new critical fish habitat	-increased fishing success, increased fish production	-high
	-supplemental walleye stocking	-increased fishing success, -increased fishing opportunities	-high
	-adult walleye transfers	-increased fishing opportunities	-moderate
	-introduce new sport fish species	-increased fishing opportunities	-moderate-high
	-promote underutilized fish species	-change in user preference, increased fishing success	-low

Table 7. continued

PROBLEM	ACTION	SOCIAL BENEFITS/COSTS	MONETARY COST
Overharvesting	-direct existing enforcement to problem areas	-decreased illegal harvest, increased fish production	-low
	-conduct creel census and assessment studies	-identification of overharvest situations	-high
	-conduct index netting and fecundity studies	-identification of stressed fish populations	-high
Tourism Industry's Need for Remote High Quality Fishery	-introduce a limited entry licence	-reduced fishing opportunities	-moderate
	-plan roads away from tourism lakes	-controlled pressure on tourism lakes, maintenance of remoteness	-low
	-access alternate non-tourism lakes	-increased fishing opportunities	-moderate-very high
	-introduce slot limits	-decreased fishing success, increased fishing opportunities	-low
	-promote CFIP	-increased involvement in fisheries management	-moderate
Inaccessibility	-open present timber company roads to underutilized lakes	-increased fishing opportunities	-low
	-select future access routes where appropriate	-increased fishing opportunities	-low

Table 7. continued

PROBLEM	ACTION	SOCIAL BENEFITS/COSTS	MONETARY COST
Habitat Degradation	-conduct river and stream surveys	-better understanding of District waters	-high
	-inventory and assess sensitive sites	-identification of critical areas	-high
	-rehabilitate spawning and nursing areas	-increased fish production	-moderate
	-ensure habitat management guidelines are being followed	-increased fish production	-moderate
	-conduct regular field inspections	-assessment of situation	-low
	-input into resource development plans	-increased fish production	-low
	-enforce various acts and legislations to protect fish habitat	-increased fish production	-moderate
Unwanted Species Introductions	-prohibit use of live bait in selected lakes	-reduced fishing success	-low
	-communicate to public the effect of unwanted species introductions	-increased survival of preferred fish	-low
	-eradicate unwanted species by chemical means	-no fishing during lake rehabilitation, increased fishing opportunities	-high

Table 7. continued

PROBLEM	ACTION	SOCIAL BENEFITS/COSTS	MONETARY COST
User Perceptions	-conduct fisheries seminar	-increased public understanding of fisheries management	-low
	-educate the children	-better informed sportsmen for the future	-low
	-promote use of underutilized species	-increased fishing opportunities	-low
	-keep public informed on Native Fishing Agreement developments	-public awareness of Native Fishing Rights	-low
	-promote "Report a Poacher" program	-less illegal harvesting of fish, increased fish production	-low
	-promote CFIP	-increased public involvement	-low
	-involve public in fisheries activities	-increased public understanding	-low

4.0 PUBLIC REVIEW

This document contains resource information that will be used in the development of a comprehensive fisheries management plan for Hearst District. The Ministry of Natural Resources is committed to involving the public because it perceives your input to be critical to the success of the fisheries management program in the District. We welcome any additional resource information or potential strategies you feel should be included in the preparation of the District Plan.

An Open House displaying the background information and optional management strategies will be held to permit you, the public, an opportunity to further discuss any and all aspects of the fishery resource, the planning process and the proposed plan with Ministry Staff. We urge you to complete and return the questionnaire available at the Open House. Please feel free to supply comments or discuss fisheries management with Hearst District Fish and Wildlife Staff at any time. Your comments will be taken into consideration for the draft management plan.

The draft plan will be presented to the public for review and comment in the very near future. Information and concerns expressed by the public will be carefully considered by the Ministry of Natural Resources prior to completion of the final management plan.

GLOSSARY

Action - A specific method designed to implement one or more strategies.

Alkaline - Capable of neutralizing acids.

Allowable Harvest - The theoretical maximum harvest that can be taken annually while maintaining fish populations.

Angler day - The equivalent of four (4) hours of angling effort.

Angling Opportunity - An angling opportunity may be defined as one fishing trip not exceeding one angler day in length.

Areas of Concern - Areas deemed to be of value to other users which could be affected by other resource extraction activities.

Baitfish - Any small fish which may be legally used as bait.

Coarse Fish - Fish species, such as suckers and burbot, which are not normally sought by recreational anglers.

Coldwater Lake, River or Stream - A waterbody capable of supporting salmonid populations.

Objective - A quantifiable and attainable end which is to be achieved.

Salmonid - Any fish species belonging to the salmon subfamily (Salmoninae), including rainbow trout, brook trout, lake trout and splake.

Slot Limit - Size regulation allowing anglers to harvest fish of specified lengths.

Strategy - Planned actions intended to achieve a desired end.

Target - A quantified end to be achieved or completed by a specific date.

Tourism Lake - A lake with a licenced commercial tourism lodge or outpost camp.

Warmwater Lake, River or Stream - A waterbody that is not a coldwater waterbody.